Published in final edited form as:

J Acquir Immune Defic Syndr. 2019 February 01; 80(2): e49–e52. doi:10.1097/QAI.0000000000001890.

Comfort discussing HIV pre-exposure prophylaxis with patients among physicians in an urban emergency department

Brett A. Tortelli, BA¹, Douglas M. Char, MD MA², John S. Crane, BA³, William G. Powderly, MD³, Amber Salter, PhD MPH⁴, Philip A. Chan, MD MS⁵, and Rupa R. Patel, MD MPH³

¹School of Medicine, Washington University in St. Louis, St. Louis, Missouri ²Division of Emergency Medicine, Washington University in St. Louis, St. Louis, Missouri ³Division of Infectious Diseases, Washington University in St. Louis, St. Louis, Missouri ⁴Division of Biostatistics, Washington University in St. Louis, St. Louis, Missouri ⁵Division of Infectious Diseases, Brown University, Providence, Rhode Island

Keywords

PrEP; HIV prevention; emergency department; awareness; implementation

Dear Letter to the Editor

Pre-exposure prophylaxis (PrEP), containing tenofovir disoproxil fumarate/emtricitabine, is effective to prevent HIV.^{1–7} One million adults are estimated to be in need of PrEP and engaging providers that can link at-risk persons into the PrEP continuum of care remains a priority.^{8–11} Emergency department (ED) physicians encounter at-risk individuals presenting an opportunity for PrEP education and linkage to care.^{12–15} Studies of PrEP awareness have focused on infectious diseases, HIV and primary care physicians.^{8,16–20} We assessed awareness and comfort in discussing PrEP with at-risk individuals among ED physicians in Missouri.

From February through March 2017, we conducted an anonymous online survey of physicians in the Division of Emergency Medicine at Washington University in St. Louis (See Supplemental Digital Content). Participants were recruited through the department listserve using Qualtrics software (Qualtrics, Provo, UT). Survey development was informed by prior studies regarding provider PrEP awareness.^{16,21,22} At the time survey, the department had 88 physicians who were faculty, fellows and residents, and there had been

§Corresponding author: Rupa R. Patel, 660 South Euclid Avenue, Campus Box 8051, St. Louis, Missouri, 63110, USA, Phone: 314-454-8351, Fax: 314-454-5392, rupapatel@wustl.edu.

Conflicts of Interest:

RRP receives compensation for consulting from Gilead Sciences, Inc. and ViiV Healthcare. WGP has served as a consultant to Merck and Gilead Sciences, Inc. WGP has received research grants to his institution from Merck. For the remaining authors, there are no conflicts of interest.

Supplemental Digital Content

Emergency Department Physician PrEP Awareness Survey.PDF

no department PrEP education sessions. The study was approved by the Washington University in St. Louis Institutional Review Board.

The 26-item questionnaire included physician demographics (i.e., level of training and years having practiced medicine since obtaining a medical degree) and seven topic domains: comfort in discussing HIV risk factors and PrEP with patients, awareness of PrEP, concerns with prescribing PrEP, perceived barriers to discussing PrEP with patients, educational training interest, training modality preference, and department support for training. The majority of question responses used a 5-point Likert scale: 1) strongly agree, 2) somewhat agree, 3) neither agree nor disagree, 4) somewhat disagree, and 5) strongly disagree and were used to create a binary measure of agree (1-2) versus did not agree (3-5) for the analysis. The primary outcome was comfort in discussing PrEP with patients. Comfort was defined as “strongly agree” or “somewhat agree.”

We assessed having an interest in PrEP educational training using a 3-point scale: 1) not interested, 2) moderately interested, and 3) very interested and defined (1) as “not interested” versus (2-3) as “interested.” Training modality preferences included: 1) in-person training, 2) webinar, 3) self-guided online training, 4) written materials, and 5) other. Perceptions of having department support for PrEP training used a 3-point scale: 1) not supportive, 2) moderately supportive, and 3) very supportive and defined (1) as “no support” versus (2-3) as “support.”

Bivariate analyses were performed between the primary outcome and awareness- and concern-related factors. Multivariable logistic regression was performed to determine awareness- and concern-related predictors of comfort discussing PrEP with patients. Predictors that were significantly associated with comfort discussing PrEP in bivariate analyses were incorporated into the final regression model. Odds ratios (OR) and 95% confidence intervals (CI) are reported. All statistical tests were two-sided and the significance level was set at 0.05. Statistical analyses were performed using SPSS version 24 (IBM Corporation, Chicago, IL).

Of 88 adult-trained emergency department physicians contacted, 76.0% completed the survey and were included in analyses. Many (64.2%) were faculty and the median years of practicing medicine were 15 years (interquartile range 10–25 years).

Most (79.1%) had previously heard of PrEP to prevent HIV infection, but few (23.9%) reported awareness of the current Centers for Disease Control and Prevention (CDC) PrEP prescribing guidelines⁷ and only 34.3% were familiar with any current research regarding PrEP safety and efficacy. Providers reported being comfortable discussing intravenous drug use (100.0%) and sexual practices (95.5%) with their patients. However, under half (43.3%) of respondents reported being comfortable discussing PrEP with their patients. Twenty-three percent were aware of local PrEP care referral information for their patients.

Concerns with PrEP prescribing included potential medication side effects (89.6%) and the selection for antiretroviral resistance (70.1%). Many (67.2%) reported that non-PrEP strategies should be attempted prior to PrEP initiation and that PrEP prescribing would lead

to riskier sexual practices (47.8%). Over half (53.7%) of the providers were concerned that PrEP is not effective in reducing HIV transmission.

In bivariate analyses, the comfort of providers discussing PrEP with their patients was associated with awareness of guidelines ($P < 0.001$),⁷ familiarity with current research on PrEP safety and efficacy ($P < 0.01$), awareness of local care referral information ($P < 0.001$), and the lack of a concern that PrEP was not effective ($P < 0.01$).

When adjusting for the concern that PrEP is not effective, awareness of the guidelines (OR: 5.49; 95% CI: 1.14-26.48) and awareness of care referral information (OR: 6.54; 95% CI: 1.45-29.56) were significantly associated with comfort in discussing PrEP with patients (Table 1).

ED physicians' perceived barriers to discussing PrEP with their patients included being unaware of where to refer patients (83.6%), their patients not asking about PrEP (73.1%), and not having PrEP provider training (71.6%). Most (86.6%) physicians noted their patients' insurance coverage could be a barrier to obtaining PrEP care, yet only half (50.7%) felt the medication was too expensive and few (38.8%) felt the clinical and laboratory costs would be prohibitive. Some physicians felt they did not have time to discuss PrEP (23.9%) or that PrEP was outside the scope of emergency medicine (19.4%).

Most (94.0%) of the physicians were interested in and perceived having department support (94.0%) for PrEP training. Self-guided online training (47.8%) and in-person training (25.4%) were most frequently preferred by providers compared to webinar (11.9%), written material (9.0%), and other (6.0%) (i.e., any format, conference lecture with emailed resources).

This is among the first PrEP awareness assessments among ED physicians, which is an important group of medical doctors who could help facilitate PrEP implementation in the US. We found most physicians (79.1%) were aware of PrEP to prevent HIV infection, but were uncomfortable discussing PrEP with their patients (43.3%). Our findings suggest that when designing future provider training interventions to enhance ED physician discussions of PrEP with patients, there should be a focus on addressing local referral information; one of the main associations observed with discomfort. Awareness of the local referral information was independently associated with discomfort after adjusting for awareness of CDC PrEP clinical guidelines⁷ and knowledge of PrEP research on safety and efficacy. A critical component for future trainings should be increasing the awareness of local PrEP referral resources. Applying these insights will help institutions more effectively leverage the emergency department's role within the PrEP continuum of care,^{11,23} such as HIV testing, PrEP education and linkage to care for at-risk individuals.

No insurance coverage and high care costs were concerns for ED physicians. These concerns likely stem from provider experiences of practicing in a Medicaid non-expansion state, which means there is limited eligibility for individuals to acquire public insurance.^{24,25} In response to these concerns and known patient insurance-related barriers to PrEP care,²⁶ the Missouri State Health Department created a PrEP provider directory and PrEP care referral algorithm based on an individual insurance coverage (e.g., uninsured and types of

insurance).^{27,28} This study highlights that better strategies for statewide dissemination of these resources is needed to reach providers in various practice settings.

We found high levels of PrEP awareness (79.1%) among ED physicians in our sample similarly seen within other non-HIV providers (66%–77%).^{8,18} In contrast, Wood et al. demonstrated 54.7% of emergency medicine, compared to 75.2% of family medicine physicians located in Washington state were PrEP aware (i.e., had heard of PrEP).²⁹ High PrEP awareness in our sample did not equate to high levels of awareness of the current CDC PrEP prescribing guidelines (23.9%)⁷, which was similarly observed among non-HIV providers (32%) in Blumenthal et al.¹⁸ This discrepancy is concerning and implies robust efforts are needed to disseminate national PrEP prescribing guidelines among non-HIV providers.

More than half (53.7%) of ED physicians did not believe PrEP was effective in preventing HIV transmission, a major prescribing concern. Other concerns included medication side effects (89.6%) and selection for drug resistance (70.1%), which were higher than that reported by physicians in San Francisco (75% and 60%, respectively).²² These concerns define necessary topics for future trainings targeted at ED physicians.

Optimistically, ED physicians felt PrEP was within their practice scope (80.6%), had time to incorporate PrEP discussions into practice (76.1%), and were interested in training (94.0%). Such interest was higher than the 68% observed among non-HIV specialists in Bacon et al.²² A self-guided online training was preferred (47.8%) similarly by San Francisco physicians (47%), but less than in a national survey (83%).^{8,22} Importantly, most (94.0%) ED physicians perceived having department support for PrEP initiatives; having support from higher levels of administration is proven to effect sustained organizational adoption of new practices.³⁰

Study limitations include a single site study at an urban academic center and a selection bias of those who filled out the survey online. Future studies should employ qualitative methodology to explore why ED physicians did not feel comfortable discussing PrEP, as well as how to alter the cultural (e.g., administrative support) and structural environment (e.g., electronic medical record reminders) of the ED to foster and re-enforce PrEP discussions by doctors and other staff with patients.

The ED offers an opportunity to connect at-risk individuals to PrEP care. Study findings can inform future trainings so that ED physicians can avoid missed opportunities for PrEP education and care referral. Application of these insights can strengthen the ED physician's role within the PrEP continuum of care in an effort to reduce HIV incidence.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Sources of Funding:

RRP is supported by the Washington University Institute of Clinical and Translational Sciences grant UL1TR000448, sub-award KL2TR000450, from the National Center for Advancing Translational Sciences of the National Institutes of Health, and NIH R25MH83620. PAC is support by NIH grants R34DA042648, R34MH110369, R34MH109371, R21MH113431, R21MH109360.

References:

1. Grant RM, Lama JR, Anderson PL, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med* 2010;363:2587–2599. [PubMed: 21091279]
2. McCormack S, Dunn DT, Desai M, et al. Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. *Lancet*. 2016;387:53–60. [PubMed: 26364263]
3. Baeten JM, Donnell D, Ndase P, et al. Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *N Engl J Med* 2012;367:399–410. [PubMed: 22784037]
4. Choopanya K, Martin M, Suntharasamai P, et al. Antiretroviral prophylaxis for HIV infection in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomised, double-blind, placebo-controlled phase 3 trial. *Lancet*. 2013;381:2083–2090. [PubMed: 23769234]
5. Thigpen MC, Kebaabetswe PM, Paxton LA, et al. Antiretroviral preexposure prophylaxis for heterosexual HIV transmission in Botswana. *N Engl J Med* 2012;367:423–434. [PubMed: 22784038]
6. U.S. Food and Drug Administration. FDA approves first drug for reducing the risk of sexually acquired HIV infection. Available at: <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm312210.htm> Accessed January 31, 2018.
7. Centers for Disease Control and Prevention. Preexposure prophylaxis for the prevention of HIV infection in the United States—2014: a clinical practice guideline. 2014 Available at: <http://www.cdc.gov/hiv/pdf/guidelines/PrEPguidelines2014.pdf> Accessed January 31, 2018.
8. Smith DK, Mendoza MC, Stryker JE, et al. PrEP awareness and attitudes in a national survey of primary care clinicians in the United States, 2009–2015. *PLoS ONE*. 2016;11:e0156592. [PubMed: 27258374]
9. Smith DK, Van Handel M, Grey JA. By race/ethnicity, Blacks have highest number needing PrEP in the United States, 2015. Presented at: 25th Conference on Retroviruses and Opportunistic Infections; March 4–7, 2018; Boston, Massachusetts, USA Abstract 86.
10. Mera Giler R, Mangnason D, Trevor H, et al. Changes in Truvada (TVD) for HIV pre-exposure prophylaxis (PrEP) utilization in the United States: (2012–2016). Presented at: 9th International AIDS Society Conference on HIV Science; July 23–26, 2017; Paris, France Abstract TUAX0105LB.
11. Nunn AS, Brinkley-Rubinstein L, Oldenburg CE, et al. Defining the HIV pre-exposure prophylaxis care continuum. *AIDS*. 2017;31:731–734. [PubMed: 28060019]
12. Hsieh YH, Kelen GD, Beck KJ, et al. Evaluation of hidden HIV infections in an urban ED with a rapid HIV screening program. *Am J Emerg Med* 2016; 34:180–184. [PubMed: 26589466]
13. Signer D, Peterson S, Hsieh YH, et al. Scaling up HIV testing in an academic emergency department: an integrated testing model with rapid fourth-generation and point-of-care testing. *Public Health Rep* 2016;13:82–89.
14. Gindi RM, Cohen RA, Kirzinger WK. Emergency room use among adults aged 18–64: early release of estimates from the National Health Interview Survey, Jan-Jun 2011 Available at: https://www.cdc.gov/nchs/data/nhis/earlyrelease/emergency_room_use_january-june_2011.pdf Accessed January 31, 2018.
15. Sanchez JP, Hailpern S, Lowe C, et al. Factors associated with emergency department utilization by urban lesbian, gay, and bisexual individuals. *J Commun Health*. 2007;32:149–156.
16. Krakower DS, Oldenburg CE, Mitty JA, et al. Knowledge, beliefs and practices regarding antiretroviral medications for HIV prevention: results from a survey of healthcare providers in New England. *PLoS ONE*. 2015;10:e0132398. [PubMed: 26146824]
17. Krakower D, Ware N, Mitty JA, et al. HIV providers' perceived barriers and facilitators to implementing pre-exposure prophylaxis in care settings: a qualitative study. *AIDS Behav*. 2014;18:1712–1721. [PubMed: 24965676]

18. Blumenthal J, Jain S, Krakower D, et al. Knowledge is power! Increased provider knowledge scores regarding pre-exposure prophylaxis (PrEP) are associated with higher rates of PrEP prescription and future intent to prescribe PrEP. *AIDS Behav* 2015;19:802–810. [PubMed: 25616837]
19. Calabrese SK, Magnus M, Mayer KH, et al. Putting PrEP into practice: lessons learned from early-adopting U.S. providers' firsthand experiences providing HIV pre-exposure prophylaxis and associated care. *PLoS ONE*. 2016;11:e0157324. [PubMed: 27304883]
20. Marks SJ, Merchant RC, Clark MA, et al. Potential healthcare insurance and provider barriers to pre-exposure prophylaxis utilization among young men who have sex with men. *AIDS Patient Care STDS*. 2017;31:470–478. [PubMed: 29087744]
21. Mimiaga MJ, White JM, Krakower DS, Biello KB, Mayer KH. Suboptimal awareness and comprehension of published preexposure prophylaxis efficacy results among physicians in Massachusetts. *AIDS Care*. 2014;26(6):684–93. [PubMed: 24116985]
22. Bacon O, Gonzalez R, Andrew E, et al. Brief report: Informing strategies to build PrEP capacity among San Francisco bay area clinicians. *J Acquir Immune Defic Syndr* 2017;74:175–9. [PubMed: 27654813]
23. Kelley CF, Kahle E, Siegler A, et al. Applying a PrEP continuum of care for men who have sex with men in Atlanta, Georgia. *Clin Infect Dis* 2015;61:1590–7. [PubMed: 26270691]
24. Patel RR, Mena L, Nunn A, et al. Impact of insurance coverage on utilization of pre-exposure prophylaxis for HIV prevention. *PLoS ONE*. 2017;12:e0178737. [PubMed: 28558067]
25. Patel RR, Ahsan K, Chan PA, et al. Brief didactic educational session increases willingness to prescribe HIV pre-exposure prophylaxis among health professionals. Presented at: 9th International AIDS Society Conference on HIV Science; July 23–26, 2017; Paris, France Abstract 5635.
26. Patel RR, Harrison LC, Patel VV, et al. HIV pre-exposure prophylaxis programs incorporating social applications can reach at-risk men who have sex with men for successful linkage to care in Missouri, USA. *J Assoc Nurses AIDS Care*. 2017;28:428–430. [PubMed: 28216178]
27. Missouri Department of Health & Senior Services. Missouri HIV PrEP provider directory. Available at: <http://health.mo.gov/living/healthcondiseases/communicable/hiv aids/pdf/prep-providers.pdf> Accessed January 31, 2018.
28. Missouri Department of Health & Senior Services. Pathways to get PrEP in St. Louis. Available at: <http://health.mo.gov/living/healthcondiseases/communicable/hiv aids/pdf/pathways-prep-stl.pdf> Accessed January 31, 2018.
29. Wood BR, McMahan VM, Naismith K, Stockton JB, Delaney LA, Stekler JD. Knowledge, Practices, and Barriers to HIV Preexposure Prophylaxis Prescribing Among Washington State Medical Providers. *Sex Transm Dis* 2018;45(7):452–458. [PubMed: 29465664]
30. Aarons GA, Green AE, Trott E, et al. The roles of system and organizational leadership in system-wide evidence-based intervention sustainment: A mixed-method study. *Adm Policy Ment Health*. 2016;43:991–1008. [PubMed: 27439504]

Multivariable regression analysis of emergency department providers' comfort discussing HIV pre-exposure prophylaxis (PrEP) with patients (N=67)

Table 1:

Variable	OR (95% CI)	P	Model 1 aOR* (95% CI)	P	Model 2 aOR** (95% CI)	P
Awareness of CDC PrEP clinical guidelines ⁷						
No	1.0	-	1.0	-	-	-
Yes	9.48 (2.37 – 37.97)	<0.001	5.49 (1.14 – 26.48)	0.03	-	-
Familiar with current research on PrEP safety and efficacy						
No	1.0	-	-	-	1.0	-
Yes	5.45 (1.82 – 16.36)	<0.01	-	-	3.57 (1.04 – 12.32)	0.04
Awareness of local PrEP care referral information						
No	1.0	-	1.0	-	1.0	-
Yes	8.75 (2.17 – 35.36)	<0.001	6.54 (1.45 – 29.56)	0.02	6.28 (1.39 – 28.39)	<0.01
Concern that PrEP is not effective						
No	1.0	-	1.0	-	1.0	-
Yes	0.24 (0.09 – 0.68)	<0.01	0.43 (0.12 – 1.52)	0.19	0.33 (0.10 – 1.08)	0.07

Abbreviations: OR: odds ratio; 95% CI: 95% confidence interval; aOR: adjusted odds ratio; CDC: Centers for Disease Control and Prevention.

* Model 1 controlled for aware of CDC guidelines, aware of local PrEP care referral information, and concern that PrEP is not effective.

** Model 2 controlled for familiar with current research on PrEP safety and efficacy, aware of local PrEP care referral information, and concern that PrEP is not effective.